



The IAS News & Views

Volume 80, Issue 2

www.iasindy.org

**Indiana Astronomical Society/Holcomb Observatory Public Lecture
February 9, 2013
7:00 PM
Holcomb Observatory**

**"Weather You Can See Tonight"
Steve Haines**

Weather is the main limiting factor for astronomy. The public weather forecast can be vague on the extent of cloud cover. During this presentation I will show how available computer generated weather guidance could give an amateur astronomer a more detailed idea of the weather that will be moving in.

The presentation will also cover weather safety. I will explain how radar works, the difference between a National Weather Service weather radar and others and where you can get the radar images.

The presentation will also cover weather safety. I will explain how radar works, the difference between a National Weather Service weather radar and others and where you can get the radar images.

Steve is an IAS Member and has a Bachelor of Science degree in Meteorology. He retired from the National Weather Service in 2010 as a Lead Forecaster. During his 31 years with the National Weather Service in Indianapolis, he held the positions of Weather Radar Focal Point, Aviation Focal Point and Evaluations Officer. His interest in Astronomy started when he was in the 8th grade. My first telescope was a \$41 three inch Tasco refractor.

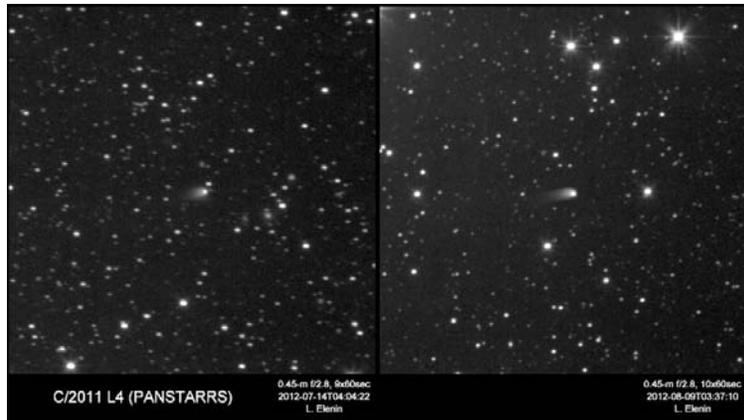
IAS NEWS

2013 The year of the Comets...maybe

by Steve Haines

Two what could be very impressive Comets will be visible in 2013. One at the beginning of the year and one at the end. One problem with Comets is that they can be spectacular or duds. This is due to not knowing their exact composition and the resultant effect of the Sun.

The first Comet will be C/2011 L4 (PANSTARRS). This was discovered in June 2011 by the Panoramic Survey Telescope Rapid Response System in Hawaii. The pictures above were taken of it in July and August 2012. It increased one magnitude in March 2012 which exceeded expectations.



L4
&

It will be the brightest from March 8-12 with a magnitude from +1 to -4. Possibly as bright as Venus. It will pass as close to the Sun as Mercury and 1.1 Astronomical Units from Earth. One problem with PANSTARRS is that at its brightest it will only be 15 degrees from the Sun.



The comet will become fainter after March but also move further above the horizon. The best viewing with a small telescope will be in April. The most Northerly Declination will be +85.2 on May 28th.

The most noteworthy Comet is C/2012S1 (ISON). This was discovered by Vitali Nevski and Arthyom Novichonok (glad it was not named after them). They are part of the

International Scientific Optical Network (ISON). This has the POTENTIAL to be the brightest Comet in many decades. It may be visible during the daylight.

The reason it may be so bright is that it is following the same orbital path of the Great Comet of 1680. This was noted for being visible during the day and had a very long tail. It will pass within 800,000 miles from the Sun. For comparison Mercury is 42.66 million miles from the Sun. Because it will pass so close to the Sun for maybe it's first time there will be a lot of material to be blown off.

ISON's being so close to the Sun at Perihelion is the main concern. It may break apart or evaporate completely.

ISON may be visible in an 8-10 inch scope in September in the Constellation Gemini moving toward Cancer. In October it may become visible to the naked eye as it moves through the Constellation Leo then near Mars on the 16th. It will be closest to the Sun on November 28th but its location only 4 degrees North will make it difficult to see. Early to mid November may be the most reliable time for Comet Viewing Parties.

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Assuming it survives its trip around the Sun, December will be the most spectacular time to view it. It may be as bright as Venus. The best viewing this month will be on the 22nd. It is interesting that the Great Comet of 1680 was the brightest during this time. It will continue to fade in 2014. The Earth will pass through its orbit on 1/14-1/15 which may cause a meteor shower.

There is no chance it will hit the Earth as ISON's closest distance will be 40 million miles.

It will be something to keep track of but remember the Stock Market come-on "Past performance is no guarantee of future results".



Asteroid 2012 DA14

This is from my contact Deborah Byrd of EarthSky.org John Shepherd

A near-Earth asteroid – called 2012 DA14 by astronomers – will pass very close to Earth on February 15, 2013. Astronomers estimate that, when it's closest to us, it'll be within the orbit of the moon (which is about 240,000 miles away), and within the orbits of geosynchronous satellites (about 26,000 miles up). 2012 DA14 will be about 21,000 miles (35,000 kilometers) away. On the day it passes, most of us won't see it or be aware of its passage, in any way. The asteroid won't alter the tides. It won't cause volcanoes. It'll just sweep closely past us – as millions of asteroids have done throughout Earth's four-and-a-half-billion-year history – some in your own lifetime.

The asteroid will be within range for small telescopes and solidly mounted binoculars, used by experienced observers who have access to appropriate stars charts. Here's what NASA says about its visibility:

On [February 15, 2013], the asteroid will travel rapidly from the southern evening sky into the northern morning sky with its closest Earth approach occurring about 19:26 UTC when it will achieve a magnitude of less than seven, which is somewhat fainter than naked eye visibility. About 4 minutes after its Earth close approach, there is a good chance it will pass into the Earth's shadow for about 18 minutes or so before reappearing from the eclipse. When traveling rapidly into the northern morning sky, 2012 DA14 will quickly fade in brightness.

Asteroid 2012 DA14 is a little guy, compared to some asteroids, although its size has not been pinned down precisely. It is thought to be about 45 meters across (nearly 150 feet across), with an estimated mass of about 130,000 metric tons.

If a space object 150 feet wide were to strike our planet, it wouldn't be Earth-destroying. But it has been estimated that it would produce the equivalent of 2.4 megatons of TNT. How does that compare with other known impact events on Earth? In 1908, in a remote part of Russia, an explosion killed reindeer and flattened trees. But no crater was ever found. Scientists now believe a small comet struck Earth. That event has been estimated at 3 to 20 megatons. So 2012 DA14 is in the same approximate

realm as the Tunguska comet (which, actually, might have been an asteroid instead). It would not destroy Earth, but it could flatten a city.

American Astronomical Society will meet in Indy

American Astronomical Society will meet in Indy the first week of June, 2013. There will likely be sessions of interest to IAS members, and I think everyone will enjoy the exhibit hall. Registration is pretty pricey, though they usually have special arrangements for teachers and workshop attendees. Members of the press are also welcome.

Apparently, if you volunteer to help at the convention, you can get in free. Contact the coordinator to volunteer at [Here's the volunteer web page](http://aas.org/meetings/aas222/volunteer). I'm certainly interested:

<http://aas.org/meetings/aas222/volunteer>

From the President's Desk

William Conner

Thanks to all who braved the cold weather to attend our January meeting at Holcomb Observatory. We had a full house and Dr. Brian Murphy's presentation on variable stars in globular clusters was well received. New member, Jim Runnels won the drawing for the Constellation Guide book. We will have two door prizes for February courtesy of the publisher of "The Year in Space." The first prize is a desk calendar with astronomical info up front and a great picture for each week. The other is a large wall calendar. Yes I know these are a month late, but they just arrived on my desk and I figure the winners will enjoy them.

I'm interested to know what you think about our programs and whether you have any suggestions, so please feel free to stop by and talk to me after each meeting.

Let me know if you would like to make a presentation at one of our future meetings. I'm well aware that many of you have exceptional knowledge on astronomical or space subjects. We would appreciate your contribution.

Recent Events for the IAS

Observing at the Link

The Link Observers Group is at it again. Eight members braved the Cold January air and fired up the 36" telescopes to work on their January List. Present were Eric and Roberta Allen, Laura and Fred Keller, Mike Birch, John Molt, Wayne McSpadden, and Bruce Bowman.

M1 was barely visible (as good in the finder as in the 36"). The moon probably had something to do with that. M37 and NGC 1981 were better in the finder than in the 36". And M78 didn't show a lot of nebulosity but you could tell that they weren't just stars. The challenge object was invisible to us. We spent some time on it, checked star charts and made sure we had the right starfield in the background but none of us could say that we actually saw it. Any way it went great. We couldn't see the challenge object but we did find the correct starfield but none of us could swear we saw the galaxy. The moon might have had an effect on that. But the scope worked perfect in the cold temperature. The dome complained a little and didn't want to move at one point and that last foot of the scope (the sheet metal extension) got to flapping in the wind but it didn't fall off. Our training was perfect preparation. We had no trouble figuring out what to do next. We got the ten other objects, looked at Jupiter then rapped it up and went home. I was home by 9:30.

Steve McSpadden

Upcoming Events

NEW ASTRONOMERS GROUP
February 9
Holcomb Observatory"
Bruce Bowman
Collimation of the Newtonian Telescope

The next NAG presentation will be on how to collimate a Newtonian. Part of that will be hands-on demo. If anyone has a small Newt they can bring that they don't mind me purposely throwing the collimation off it would be appreciated.
Bruce

Onions and Orchids

Thanks to Mike Newberg and Chris Cordell for stepping up and becoming coordinators of the McCloud Star Gaze and the Astronomical League Correspondant respectfully. Thanks to Steve McSpadden for opening the link to provide observing opportunities.

IAS Calendar of Events for February

February 5 Board Meeting
February 9 General Meeting and NAG

We really need scopes at public events, please contact Gerald Venne at events-coordinator@iasindy.org

Observing Activities

Activities for February:

Link Observatory -

None planned

Prairie Grass Observatory Activities—

We are able to go to the Link, Prairie Grass Observatories, and McCloud Nature Park at non scheduled times if they do not conflict with reserved activities:

For those interested in going to The Link Observatories for observing call John Shepherd at 1 317-862-3442.

For those interested in going to McCloud to observe, please call the park office 765 676 5437 before 4PM on the day you want to go out. They will give you permission to be there at night and make arrangements to cut off the lights.

For those interested in going to Prairie Grass Observatory for observing call Hoppe at 1-765-296-2753.

February IAS Observing Challenge

THE FEBRUARY OBSERVING LIST

Below please find a list of ten (10) objects to view this month. Those who complete the list will receive a certificate at the following general meeting. We're also providing a challenge object to help push the limits of your observing skills. It's not necessary to successfully view the challenge object to receive the certificate; we only ask that you try.

Please complete the following list to receive the February certificate:

M35 (big open cluster in Gemini)
M41 (bright open cluster in Canis Major)
M46 (rich open cluster in Puppis)
M47 (bright open cluster in Puppis)
M50 (very nice open cluster in Monoceros)
NGC2158 (companion cluster to M35)
NGC2392 (the Eskimo Nebula in Gemini)
NGC2403 (a bright spiral galaxy)
NGC2438 (planetary nebula "in" M46)
NGC2661 (Hubble's Variable Nebula)

Challenge object for February 2013: NGC2359 (Thor's Helmet)

The above objects are all located between 6 and 8 hours of right ascension and so are well-placed for evening viewing this month.

This month we're continuing our tour of the winter Milky Way; and that means galactic, "open" clusters. The bright cluster M41 is easily located about 4 degrees south of the brightest star in our sky, Sirius. M35 is nearly half a degree in diameter; an impressive cluster consisting mostly of blue-white stars that should be readily visible in a finder scope. More challenging is NGC2158, a very rich, 9th-magnitude cluster a few arc-minutes to the southwest of M35. These two objects are physically about the same size, but NGC2158 is an older and richer cluster located four times further away from us. M50 is also rich and brighter than 6th magnitude, therefore theoretically visible to the naked eye. The cluster M47 contains bright stars and quite easy to find but is not particularly rich. M46, located about a degree to the east of M47, contains many more stars than its companion, but the individual stars are fainter. With careful viewing you should be able to detect the planetary nebula NGC2438 superimposed on the northern part of M46. The nebula is closer to us than the cluster and the two objects are not physically related (if such things interest you, try NGC2452 and NGC2453 about 12 degrees to the south). The Eskimo Nebula is 10th magnitude and nearly 50" in diameter -- large for a planetary. In photographs, it resembles a face surrounded by a parka hood; although such details are unlikely to be detected visually. If your viewing site is light-polluted, an OIII filter may make these planetaries more visible. Hubble's Variable Nebula NGC2261 is a comet-like reflection nebula illuminated by the young variable R Monocerotis. It was the first object photographed with the 200" telescope at Palomar. Our lone extragalactic object this month is NGC2403, an outlying member of the M81 group. This "late" spiral galaxy is visible in binoculars and contains many HII regions, but with no bright stars nearby it can be difficult to locate. Our challenge object NGC2359 is a combination of emission and reflection nebulosity in Canis Major. Thor's Helmet should be visible in an 8" scope under a dark sky; assuming there's no snow on the ground!

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If you complete this list prior to the end of February, contact Bruce Bowman to ensure you receive recognition. Winners are asked to pick up their certificates at the following general meeting. At this time only IAS members are eligible.

Congratulations to the following seven IAS members for completing the December list: Eric Allen, Roberta Allen, Mike Birch, Steve McSpadden, Wayne McSpadden, Mike Newberg, and Phillip Rone. Phil also successfully viewed the challenge object NGC1365 from a relatively balmy location (Florida).

Q&A ABOUT THE IAS MONTHLY OBSERVING AWARD

Q1: Do I have to use my own equipment?

A: No...although bringing and using your own telescope is strongly encouraged. Also keep in mind that the IAS has an equipment loaner program.

Q2: Do I need to find the objects myself?

A: No. You need only make the observations. Conceptually, if we had 10 telescopes set up -- each trained on a different object -- you could just go from one to the other and become eligible.

Q3: What do I need to submit to you to receive the award?

A: Just contact me and let me know that you completed the requirements for the month.

Al/Cor Observations **By Chris Cordell**

Observing Stellar Evolution

Introduction

Everything that you see in the night sky is visible to you because of light from a star. The stars themselves, nebulae, planets, moons, are visible because of starlight. Even dark nebulae are visible because they block the illumination of stars or other objects lit up by stars. We exist because early generations of stars generated the elements that make up our planet and the chemical elements required for life. It is not an understatement to say that we exist because stars exist.

The Observing Stellar Evolution club will be of interest to beginning observers as well as more experienced observers. The purpose of this club is to develop in the observer an appreciation for the most common objects that they see in the night sky – stars. Stars, like us, are born, live their lives and end their lives. Understanding this 'stellar evolution' is important to understanding how the universe works.

Some of the objects in this observing list are on other Astronomical League observing lists, so you may have already observed some of the objects. In addition to performing the observations, you will have enough information to put each object into the context of stellar evolution. In the end, observing is something you do in your mind. It's not about simply seeing the object, it's about understanding what the object is, why it is important, why it is interesting and how it fits into the story. Once you do,

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you'll be able to say 'oh, WOW' for objects that you may have overlooked or may have underappreciated so far.

Many of the objects in this list are easy naked eye objects, but some will require a small telescope and some patience to find. Not all stars are bright, and end-of-life stars can be particularly dim. The bright objects will generally be visible from a home in the city or in the suburbs, the dimmer objects will require reasonably dark, but not pristine, skies. A few of the objects will be better seen under clear dark skies with a large telescope.

Rules and Regulations

As a member of the Indiana Astronomical Society, you are eligible to qualify for the A.L.'s certificate and a pin for completion of the program.

The observing list for this program is divided into several sections each illustrating a separate phase of stellar evolution. To meet the objective of this program it will be necessary for you to observe the objects in each of the categories.

A total of 100 objects must be observed to complete this program. A log sheet that meets the requirements of this program is at the end of the on-line manual. The observations must be made in the context of completing this program; objects that you have already observed must be observed again to complete this program.

Your observing log sheet must include the following on each of the objects:

Object name

Date & Time (local or Universal Time)

Observing Site – City, Town, State, Country or Latitude and Longitude

Telescope used to make the observation – generic description is ok (Examples: 8" SCT, 4" refractor, 15" Reflector, etc.)

Magnification used

Object description

As part of this program you'll be looking at, and understanding the HR diagram. This diagram was developed independently by Ejnar Hertzsprung and Henry Norris Russell in about 1910. If there is a lot to be gained from the study of the HR diagram, its concept is easy. The X (horizontal) axis of the chart is temperature of the star (color and temperature are the same thing) and the Y (vertical) axis of the chart is the luminosity of the star. The luminosity is the intrinsic brightness of the star. A star's magnitude is the brightness of a star as seen from earth, so a high luminosity star that's very far away may look dim to us and a lower luminosity star that is nearby may appear brighter to us.

To submit your observations, mail the copies of your logs to the Program Coordinator, along with your name, address, astronomy club or Astronomical League affiliation, e-mail, and phone number. Please do not send your original logs, as they will not be returned. Upon verification of your observations, your certificate and pin may be forwarded either to you or the Indiana Astronomical Society Awards Coordinator, for presentation, as you so choose.

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For Observing Manual and Object List details, access <http://astroleague.org/>, click on the "Observe" tab at the top of the home page, and select "Clubs by Experience Level". The Stellar Evolution Program is listed in the Beginner section.

More Info

PDF- "Observing Stellar Evolution" Object List

IU Kirkwood Observatory Bloomington

The Kirkwood Observatory Solar Telescope is open on the "First Saturday" of each month from 1-3 PM. Viewers may even be able to see a solar prominence or two weather permitting. Updated weather conditions and closings will be posted at the Kirkwood Observatory Hotline at (812) 855-7736, and at the Observatory webpage,

<http://www.astro.indiana.edu/kirkwood.shtml>.

Monthly openings of the solar telescope are planned for the first Saturday of each monthly during our 2013 observing seasons. And if you want to follow the Sun in between our monthly Solar Telescope openings, the website www.spaceweather.com provides daily updates.

Kirkwood Observatory on the IU campus is open each Wednesday evening from spring break until mid-November, weather permitting! Join us for a night of observing the night sky with the Kirkwood 12" refractor. Please visit our schedule at <http://www.astro.indiana.edu/kirkwood.shtml>, for a list of dates and times. For updated weather conditions and closings, please call the Kirkwood Observatory Hotline at (812) 855-7736.

NASA Space Place

The Art of Space Imagery

By Diane K. Fisher

When you see spectacular space images taken in infrared light by the Spitzer Space Telescope and other non-visible-light telescopes, you may wonder where those beautiful colors came from? After all, if the telescopes were recording infrared or ultraviolet light, we wouldn't see anything at all. So are the images "colorized" or "false colored"?

No, not really. The colors are translated. Just as a foreign language can be translated into our native language, an image made with light that falls outside the range of our seeing can be "translated" into colors we can see. Scientists process these images so they can not only see them, but they can also tease out all sorts of information the light can reveal. For example, wisely done color translation can reveal relative temperatures of stars, dust, and gas in the images, and show fine structural details of galaxies and nebulae.

Spitzer's Infrared Array Camera (IRAC), for example, is a four-channel camera, meaning that it has four different detector arrays, each measuring light at one particular wavelength. Each image from each detector array resembles a grayscale image, because the entire detector array is responding to only one wavelength of light. However, the relative brightness will vary across the array.

So, starting with one detector array, the first step is to determine what is the brightest thing and the darkest thing in the image. Software is used to pick out this dynamic range and to re-compute the value of each pixel. This process produces a grey-scale image. At the end of this process, for Spitzer, we will have four grayscale images, one for each of the four IRAC detectors.

Matter of different temperatures emit different wavelengths of light. A cool object emits longer wavelengths (lower energies) of light than a warmer object. So, for each scene, we will see four grayscale images, each of them different.

Normally, the three primary colors are assigned to these gray-scale images based on the order they appear in the spectrum, with blue assigned to the shortest wavelength, and red to the longest. In the case of Spitzer, with four wavelengths to represent, a secondary color is chosen, such as yellow. So images that combine all four of the IRAC's infrared detectors are remapped into red, yellow, green, and blue wavelengths in the visible part of the spectrum.

Download a new Spitzer poster of the center of the Milky Way. On the back is a more complete and colorfully-illustrated explanation of the "art of space imagery." Go to spaceplace.nasa.gov/posters/#milky-way.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

January 2013



This image of M101 combines images from four different telescopes, each detecting a different part of the spectrum. Red indicates infrared information from Spitzer's 24-micron detector, and shows the cool dust in the galaxy. Yellow shows the visible starlight from the Hubble telescope. Cyan is ultraviolet light from the Galaxy Evolution Explorer space telescope, which shows the hottest and youngest stars. And magenta is X-ray energy detected by the Chandra X-ray Observatory, indicating incredibly hot activity, like accretion around black holes.

Do You Have a Question or Need?

We have established a list of members who would be willing to receive calls for help on specific objects. If you have a specific skill and would be willing to help others please contact Jeff Patterson KB9SRB@hotmail.com.

Based upon the responses we received to your intro question recently, perhaps we should add a section to the bulletin naming those members who would be willing to receive calls for help on **specific subjects**.

William Conner (wmtconner@att.net) - for CCD imaging and film photography.

Jeff Patterson (Contact Jeff via the webpage iasindy.org under the contact us section) – Observatory design and construction

Eric Allen (ericandroberta@sbcglobal.net) - Telescope making and mirror grinding

Brian Murphy (bmurphy@monumentcompanies.com) - "telescope construction and collimation".

Fritz Kleinhans (starman@iupui.edu) Color CCD and DSL Camera astrophotography

Public Outreach Programs – If you want to schedule a program at the Link Observatory or at your site, please contact the following people:

Gerald Venne is our Public Events Coordinator. He will be responsible for coordinating Public Events for the IAS. To schedule a public event contact Gerald Venne (Contact Gerald via the webpage iasindy.org under the contact us section).

He needs your help. Let Gerald know if you would like to show the public our sky. We need people to help at Link and elsewhere. It is actually a lot of fun.

If you would like to schedule the Goethe Link Observatory, please contact John Shepherd. Contact John via the webpage iasindy.org under the contact us section)

Astro Ads

Are you changing or upgrading your equipment? Do you have or are you looking for astronomical materials and equipment? The Indiana Astronomical Society as a service to its members, will publish non-commercial ads at no charge. The ad will stay in the Bulletin for 4 months and may be renewed at the owner's request.

To place an ad, contact:

Bulletin Editor

Jeff Patterson

1780 S. Morgantown Rd.

Greenwood, IN 46143

(317) 300-0449

E-Mail: KB9SRB@Hotmail.com

For Sale: TAL 100RS, dew shield, finder scope, rings, scope accepts either 1.25 or 2" diagonals, very small blemish on the lens coating. Make Offer. Jay Simmons jamesmichael55@hotmail.com

For Sale: Kenneth Novak 4-vane spider assembly for telescope tubes of 15.5-16" O.D.. The hub is 1.75" in length and sized for a 3/8" stud. Asking \$20 or will trade for other Dobsonian construction materials. Contact Bruce Bowman 317-539-2753

For Sale:Meade 8" SC 2080 outfit.

For sale: Meade 8" Schmidt-Cassegrain with lots of accessories. I can e-mail a list of the accessories. \$750. Prefer cash.

Contact me at mrobbinsroost@comcast.net.

Equipment Loan Program

The Loan Program has been helpful to those new to the hobby and others in need of observing equipment. We consider offers of equipment you may not have need for any longer.

Did you know you could borrow a scope or piece of astronomy equipment from the Society and take it for a test drive? The Society has a program where members who are trying to determine what kind of equipment to buy can borrow one of the Society's scopes for a month or two and see how they like it. Philip Dimpelfeld is the chairman of the program and can arrange for your pickup and training on the

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use of the particular instrument. This is a great way to see what telescope you want to purchase. We have several scopes, eyepieces and binoculars to loan.

Philip Dimpelfeld at equipment@iasindy.org

Board Meeting –February 5, 2013

The IAS Board Meeting is being held Holcomb Observatory on the Butler Campus at 7:00PM. If you need further assistance, please contact Bill Conner via the webpage iasindy.org under the contact us section

2013 Calendar of Monthly Meetings

Month	Board	General	NAG	McCloud
January	8	12	12	
February	5	9	9	
March	5	9	9	
April	2	6	6	20
May	28	June 1	June 1	18
June	25	29	1	
July	23	27	27	
August	27	31	31	
September	24	28	28	
October	22	26	26	
November	19	23	23	
December	None	TBA		

Membership Status Report

The following is the January 2013 status of membership as of 1/29/13:

Total Membership: 151

Renewals: 13

New Members: 2

Richard Good – Avon, IN

Lenin Pinto – Columbus, IN

Inactive Status: 7

Russ & Pete Barton

Zach Brahma

James Detwiler

Kenneth Koontz

Mark Marshall

Eugene Roeschlein

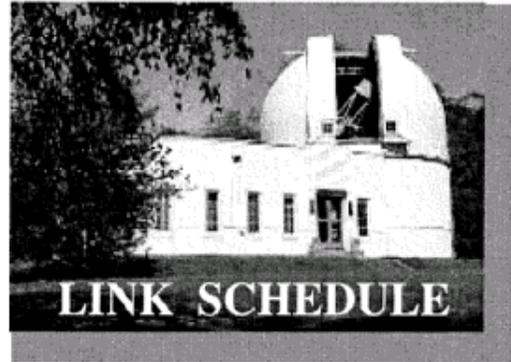
Jon Williams

Goethe Link Observatory

Observatory Address

**Goethe Link Observatory
8403 N. Observatory Lane
Martinsville, IN 46151**

Latitude: 39 degrees, 33 minutes north
Longitude: 86 degrees, 24 minutes west
Phone: (317) 831-0668



This schedule is being published to assure proper access to the Link Observatory for programs that are designed as observational, general education, astronomy conferences, or amateur research projects. Training programs are tentatively scheduled for Saturday evenings only. Although other requests can over-ride these sessions. It is the purpose of this listing to prevent activity conflicts.

If you need to acquire use of the 36-inch telescope: remember two important IAS guidelines: 1) *There must be a telescope operator and assistant available* 2) *contact the Observatory Manager: John Shepherd for scheduling* **Contact via the webpage iasindy.org under the contact us section.**

DON'T WAIT UNTIL THE LAST MINUTE TO MAKE YOUR REQUEST OR YOU MAY NOT GET ACCESS.

IAS News & Views Monthly Newsletter for the IAS

Accessing the IAS News & Views

The current bulletin can be found on the website www.iasindy.org

The monthly newsletter welcomes articles of local astronomical interest information and want ads:

Please submit to

The Indiana Astronomical Society, Inc

Jeff Patterson, editor

1780 S. Morgantown Rd

Greenwood, IN 46143

Phone: (317) 300-0449

KB9SRB@hotmail.com

Membership information Contact via the webpage iasindy.org under the contact us section

Contact any IAS officer or the Treasurer John Shepherd or Vicki Switzer

Pay Your Dues by PayPal

We can now pay dues on our website using paypal. There is a cart system where you can pay dues, order magazines, or donate to the Society. Thanks to John Shepherd and Doug Sangunetti for getting it done. It was not as easy as it seemed. The cart is found in the Join the Society section of the website. You will have to establish a PayPal account for yourself to make the transactions.

Observatory Manager

John Shepherd **Contact via the webpage iasindy.org under the contact us section**

Public Event Coordinator

Gerald Venne **Contact via the webpage iasindy.org under the contact us section**

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Equipment Loan Program Coordinator

Philip Dimpelfeld Contact Phil at equipment@iasindy.org

Membership Coordinator

Roberta Allen Contact Berta via the webpage iasindy.org under the contact us section

Logo Clothing

The Board has developed a new supply of logo ware with our new logo using Mid Central Trophy in Kokomo, IN. Typically T shirts, sweatshirts, polo shirts, and caps are available. Now we are even making it easier for you. We have changed our method of order so that you can have better service. Call Linda, tell her this is an order for the IAS logo ware, discuss what you want and give her the size. She can determine the cost and shipping and mail the order to your home. directly.

Linda

Mid-Central Trophy

422 Arnold Ct

Kokomo, IN 46902

765-453-5494

All Major credit cards are accepted.

Hours 9-5 EST

February Calendar, 2013

For a more detailed Calendar of Events see the webpage www.iasindy.org

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 3rd QTR ☾	2
3	4	5 Board Meeting 7PM	6	7	8 New Moon ●	9 Public Lecture 7 PM Holcomb Observatory
10	11	12	13	14	15 1st Qtr ☾	16
17	18	19	20	21	22	23 Full Moon ○
24	25	26	27	28		